

# Infectious Disease in Harris County, Texas

August 2011

Infectious disease refers to a broad range of conditions caused by pathogens and can be spread directly or indirectly, from one person to another. Improved sanitation, immunizations and the availability of pharmaceuticals have decreased the threat of infectious disease, however, it remains a major cause of illness, disability and death in the U.S. and is the leading cause of death worldwide.<sup>1</sup> Further, emerging infectious diseases, those that are new or recently identified, pose new challenges to protecting the public's health.

For some infectious diseases, state rules and regulations require health care providers, hospitals, labs, schools, child care facilities and others to report any known or suspected cases.<sup>2</sup> In Texas, diseases are typically reported to local health departments; they in turn report cases to the Texas Department of State Health Services. Infectious disease reporting allows health officials to recognize disease patterns and intervene appropriately in order to prevent or control outbreaks and epidemics.

This profile highlights data about various infectious diseases in Harris County.

Table 1: Frequency and Rate of Notifiable Conditions in Harris County (excluding City of Houston) in 2010

Reportable Diseases	Number of Cases	Rate per 100,000 Population
Salmonellosis	308	17.9
Streptococcal Disease	244	14.2
Chickenpox	187	10.9
Meningitis	141	8.2
Shigellosis	120	7.0
Campylobacteriosis	85	4.9
Pertussis	62	3.6
Enterohemorrhagic E.coli	24	1.4
Viral Hepatitis	24	1.4
Arboviral Diseases	19	1.1
Cryptosporidiosis	15	0.9
Lyme Disease	14	0.8
Encephalitis	9	0.5
Malaria	8	0.5
Legionellosis	7	0.4
Meningococcal Disease	5	0.3
Vibriosis	5	0.3
Mumps	4	0.2
Listeriosis	3	0.2
Yerseniosis	3	0.2
Amebiasis	2	0.1
Botulism	2	0.1
H.influenzae Type B	2	0.1
Brucellosis	1	0.1
Cysticercosis	1	0.1
Rickettsia	1	0.1
Typhoid Fever	1	0.1

Source: HCPHES Disease Control and Clinical Prevention Division

# Vaccine-Preventable Diseases and Immunizations

Occurrences of once-common diseases such as measles, mumps and tetanus are at or near record lows due to the availability of safe and effective vaccines. However, occurrences of certain vaccine-preventable diseases persist.

For example, a vaccine for chicken pox was introduced in 1995. According to the Centers for Disease Control and Prevention (CDC), between 1995 and 2005, occurrence of and hospitalizations related to chicken pox declined by 90% nationwide.<sup>3</sup> However between 2002 and 2006 in Harris County (outside the City of Houston), there was an 80% increase in chicken pox infections – an increase of 400 cases during this time period.

Following the national decline in chicken pox, there was an increasing number of U.S. chicken pox cases among those who had been previously vaccinated. In 2006, the Federal Advisory Committee on Immunization Practices determined that children should receive a booster dose of the vaccine between the ages of 4-6. Since then, chicken pox in Harris County decreased to a rate of 10.9 cases per 100,000 persons in 2010, which represents an 82% decline since 2006.

Table 2: Number of Reported Vaccine-Preventable Disease Cases and (Rate per 100,000 Population), Harris County Excluding the City of Houston, 2005-2010

	2005	2006	2007	2008	2009	2010
Chicken Pox	604 (40.8)	913 (61.7)	685 (46.3)	352 (20.4)	350 (20.3)	187 (10.9)
Measles	2 (0.1)	0	2 (0.14)	0	0	0
Rubella	0	0	0	0	0	0
Mumps	1 (0.1)	6 (0.41)	2 (0.14)	3 (0.17)	1 (0.1)	4 (.23)
Pertussis	83 (5.6)	70 (4.7)	46 (3.1)	75 (4.3)	152 (8.8)	62 (1.9)
Tetanus	0	0	0	0	0	0

HCPHES Disease Control and Clinical Prevention Division

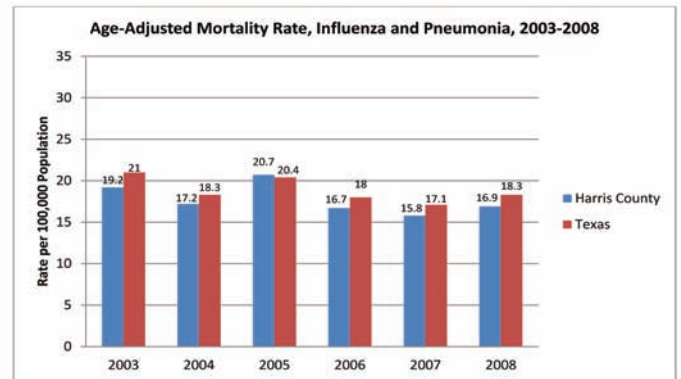
## Childhood Immunizations

The Advisory Committee on Immunization Practices and the American Academy of Family Physicians recommends a schedule of vaccines that all children should receive by a certain age. According to CDC's 2009 National Immunization Survey, an estimated 70.2% of Houston-area children were appropriately immunized at age two with the 4:3:1:3:3:1 series of vaccines.<sup>4</sup> In comparison, 73.9% of Texas children and 69.9% of U.S. children were appropriately vaccinated.



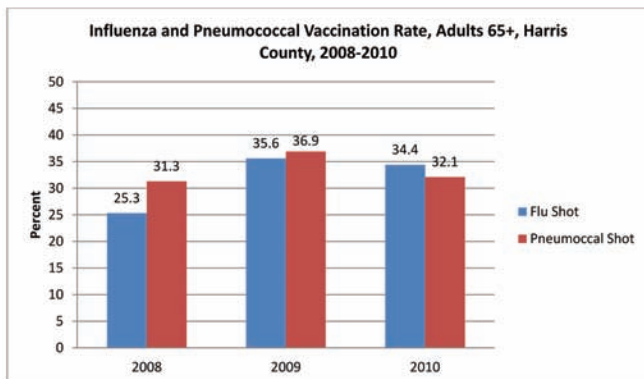
## Adult Immunizations

Each year about 23,000 people die from seasonal flu in the U.S. <sup>5</sup> Older adults are at high risk for complications from influenza, one of which is pneumococcal pneumonia. Pneumococcal pneumonia kills about 40,000 people in the U.S. each year, more than all other vaccine-preventable diseases combined, including influenza.



Source: Texas Department of State Health Services, Center for Health Statistics

CDC recommends that adults age 65 and over be vaccinated against influenza each year, and receive vaccination against pneumococcal pneumonia. In most cases just one dose of pneumococcal vaccine is needed, unless the first dose was given before age 65 and at least five years have passed since that dose.



Source: Texas Department of State Health Services, BRFSS

Behavioral Risk Factor Surveillance System (BRFSS) data from 2010 show that among adults age 65 and over surveyed in Harris County, 34.4% reported not receiving a flu vaccine in the past year, compared to 32.8% of Texas older adults and 33.5% of U.S. older adults.<sup>6</sup> Similarly, 32.1% of Harris County older adults reported never receiving a pneumococcal pneumonia vaccine, compared to 31.5% older adults in Texas and 32.4% in the U.S.

# HIV/AIDS and Sexually Transmitted Diseases

## HIV and AIDS

The human immunodeficiency virus (HIV) is the virus that can lead to acquired immune deficiency syndrome (AIDS). HIV damages a person's health by destroying the blood cells needed to help the body fight disease.



According to the Texas Department of State Health Services (DSHS), through December 2009 there were 19,810 people living with HIV and AIDS in Harris County.<sup>7</sup> In addition, CDC estimates that up to one quarter of HIV/AIDS infections are undiagnosed. Therefore, it is possible that over 4,952 additional Harris County residents are unaware they are infected with HIV.

The rate of HIV infection differs between racial and ethnic groups. Among Harris County residents living with HIV (non-AIDS) in 2009, 53% were African American, 20% were white and 25% were Latino.<sup>8</sup>

## Sexually Transmitted Diseases

The occurrence of sexually transmitted diseases (STDs) such as chlamydia, gonorrhea and syphilis is an indicator of unprotected sexual contact, a primary risk factor for HIV infection. Further, CDC reports that inflammations associated with STDs can facilitate the transmission of HIV. Left untreated, STDs can result in infertility, adverse pregnancy outcomes and cancer.

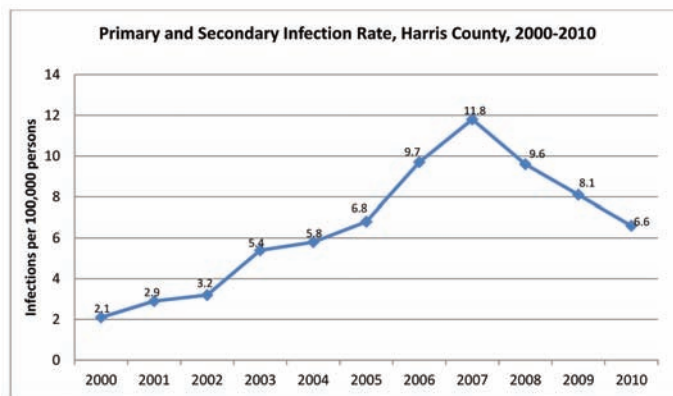
According to CDC, Chlamydia is the most preventable STD in the U.S., as well as one of the most frequently reported notifiable conditions, with more than 1,244,180 infections reported in 2009.<sup>9</sup> DSHS reports that in 2010, 21,718 cases of chlamydia were reported in Harris County, an infection rate of 530.2 cases per 100,000 persons and an increase of 30.7% from 2009.<sup>10</sup> In comparison, the 2010 State rate was 467.3 cases per 100,000 persons.

CDC reports that although U.S. rates of gonorrhea infection have decreased almost 75% since the 1970's, it is the second most reported notifiable condition in the U.S. In Harris County, 6,371 cases of gonorrhea were reported to DSHS in 2010, a rate of 155.5 cases per 100,000 persons.

Syphilis has been shown to facilitate the transmission of HIV and to increase the likelihood of poor pregnancy outcomes. According to CDC, although the rate of reported primary and secondary syphilis infections in the U.S. decreased drastically during the 1990's, there has been a steady increase since 2000, including an increase of 3.7% from 2008 to 2009.<sup>11</sup>

Harris County followed this national trend until 2010 when the infection rate decreased by 19% from 8.1 cases per 100,000 persons in 2009 to 6.6 cases per 100,000 in 2010.

Congenital syphilis is a life-threatening infection among infants. The infection is often spread from a pregnant mother who has syphilis through the placenta to her unborn infant. There were 47 cases of congenital syphilis among infants in Harris County in 2010.<sup>12</sup> This reflects an increase from 45 cases in 2008 and 39 cases in 2007.



Source: Texas Department of State Health Services, Bureau of HIV and STD Prevention

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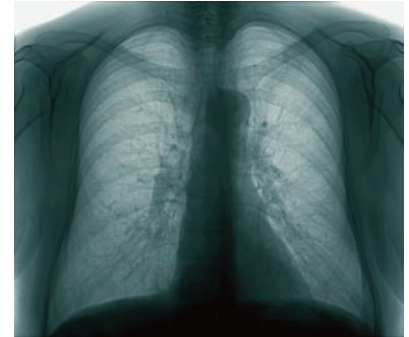
*Congenital syphilis cases increased 74% between 2006 and 2010.*

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# Tuberculosis

Tuberculosis (TB), a bacterial disease affecting the lungs and is spread from person to person through the air, was once the leading cause of death in the U.S. Drug therapies developed in the twentieth century led to improved health outcomes and a decline in infection rates. According to DSHS, 341 new cases of TB were diagnosed in Harris County in 2010, a rate of 8.3 cases per 100,000 persons, representing a 17% decrease since 2008.<sup>13</sup> The Harris County rate, however, is more than twice the national rate of 3.6 cases per 100,000 persons and 38% higher than the State rate of 5.5 cases per 100,000 persons.



# Vector-Borne Diseases

Vector-borne diseases require an insect vector for transmission. West Nile Virus (WNV) and St. Louis Encephalitis (SLE) are sometimes-fatal viral diseases transmitted to humans primarily through the bite of an infected *Culex* mosquito. WNV was first identified in the U.S. in 1999 and quickly spread throughout the country. The first human cases of WNV in Harris County occurred in 2002, when there were 106 confirmed cases and 12 deaths. There were no human cases of SLE reported in Harris County in 2010.

*Table 3: Number of Confirmed West Nile Virus Cases and Deaths, Harris County, 2005-2010*

	2005	2006	2007	2008	2009	2010
Confirmed Cases	42	68	20	6	10	32
Confirmed Deaths	1	5	2	1	1	1

*HCPHES Disease Control and Clinical Prevention Division and the Houston Department of Health and Human Services, Bureau of Epidemiology, 2011*

## Data Sources:

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2. 25 Tex. Admin. Code Chapter 97.
3. Centers for Disease Control and Prevention (CDC). VPD Surveillance Manual, 5th Edition, 2011, Chapter 17, Varicella: 17-2.
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6. Texas Department of State Health Services (DSHS), Center for Health Statistics. Texas BRFSS, <http://www.dshs.state.tx.us/chs/brfss/>, accessed August 2011.
7. DSHS, HIV/STD Program. Texas HIV Surveillance Report, <http://www.dshs.state.tx.us/hivstd/reports/default.shtm>, accessed August 2011.
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9. CDC, Division of STD Prevention. Chlamydia CDC Fact Sheet, <http://www.cdc.gov/std/chlamydia/stdfact-chlamydia.htm>, accessed August 2011.
10. DSHS, HIV/STD Program, 2010 Texas STD Surveillance Report, <http://www.dshs.state.tx.us/hivstd/reports/default.shtm>, accessed August 2011.
11. CDC, Division of STD Prevention. 2009 Sexually Transmitted Diseases Surveillance, <http://www.cdc.gov/std/stats09/Syphilis.htm>, accessed August 2011.
12. City of Houston, Health and Human Services Department, Bureau of Epidemiology. Unpublished data, accessed August 2011.
13. DSHS, Infectious Disease Control Unit. Texas Morbidity TB Data, <http://www.dshs.state.tx.us/idcu/disease/tb/statistics/>, accessed August 2011.

## Disease Reporting:

If you have questions or would like to report a notifiable condition in Harris County, you may contact an HCPHES epidemiologist on duty at 713-439-6000. For a complete list of notifiable conditions in the state of Texas, visit <http://www.dshs.state.tx.us/idcu/investigation/conditions/>.